

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. – 69. (cancelled)

70. (cancelled)

71. (previously presented) A method of testing a plurality of memory elements organized in a plurality of rows, comprising the steps of:

writing test data into a first seed row of memory elements;

latching the test data from the first seed row of memory elements in response to a first external signal;

writing the latched test data into subsequent groups of memory elements in response to a second external signal;

reading the test data from the subsequent groups of memory elements; and

comparing the test data read from the subsequent groups of memory elements with the test data written to the first seed row of memory elements.

72. – 134. (cancelled)

135. (previously presented) A method of testing a portion of a memory array having a plurality of memory elements formed in a plurality of rows, and wherein said array is arranged in a plurality of memory blocks, said method comprising the steps of:

selecting a memory block for testing:

writing test data into a first seed row of memory elements in the selected memory block;

latching the test data from the first seed row of memory elements in response to a first external signal;

writing the latched test data into subsequent pluralities of rows of memory elements in response to a second external signal;

reading the test data from the memory block; and

comparing the test data read from the memory block with the test data written into the first seed row.

136. (original) The method of claim 135 wherein the first external signal is a row address strobe signal and the second external signal is a column address strobe signal.

137. – 151. (cancelled)

152. (currently amended) A method of placing a solid state memory device into a test mode, comprising:

applying to the device a voltage outside the range of voltages used to represent logic signals, and while said voltage is being applied;

~~The method of claim 152 additionally comprising the step of inhibiting the device from normal operation while said step of applying a voltage is performed;~~

applying a specific combination of control signals to enable the receipt of a test enable key;

verifying the test enable key and confirming the presence of the applied voltage;

applying said specific combination of control signals to enable the receipt of at least one test mode key; and

decoding the test mode key to place the device in a test mode.

153. – 167. (cancelled)

168. (currently amended) A dynamic random access memory, comprising:

an array of memory cells;

a plurality of peripheral devices for writing data into said memory cells and for reading data out of said memory cells;

said array being organized into rows and columns to form a plurality of individual arrays, and wherein said plurality of individual arrays is organized into a plurality of array blocks, and wherein said plurality of peripheral devices includes a plurality of sense amplifiers positioned between adjacent rows of individual arrays and a plurality of row decoders positioned between adjacent columns of individual arrays, and ~~The memory of claim 167~~ wherein each of said plurality of individual arrays includes digitlines extending therethrough and into said sense amplifiers, and wherein said array blocks include I/O lines running between adjacent rows of individual arrays and through said sense amplifiers, said sense amplifiers including circuits for transferring signals on said digitlines to said I/O lines;

a plurality of voltage supplies responsive to an external voltage for generating a plurality of supply voltages for use by said array and said plurality of peripheral devices; and

test mode logic for determining whether the memory is in a test mode, and wherein said plurality of peripheral devices includes a latching circuit responsive to a first external signal when the memory is in the test mode, for latching data stored in a first seed group of memory elements, and an enable circuit responsive to a second external signal when said memory is in the test mode, for enabling the latched data to be written to a second group of memory elements.

169. (currently amended) A dynamic random access memory, comprising:

an array of memory cells ~~The memory of claim 70~~ wherein said array of memory cells is organized into a plurality of array blocks[[,]];

~~said memory additionally comprising~~ a power distribution bus including a first plurality of conductors forming a web around each of said array blocks and a second plurality of conductors extending from said web to form a grid within each of said array blocks;

a plurality of peripheral devices for writing data into said memory cells and for reading data out of said memory cells;

a plurality of voltage supplies responsive to an external voltage for generating a plurality of supply voltages for use by said array and said plurality of peripheral devices through said power distribution bus; and

test mode logic for determining whether the memory is in a test mode, and wherein said plurality of peripheral devices includes a latching circuit responsive to a first external signal when the memory is in the test mode, for latching data stored in a first seed group of memory elements, and an enable circuit responsive to a second external signal when said memory is in the test mode, for enabling the latched data to be written to a second group of memory elements.

170. (currently amended) A dynamic random access memory, comprising:

an array of memory cells;

a plurality of peripheral devices for writing data into said memory cells and for reading data out of said memory cells;

a plurality of voltage supplies responsive to an external voltage for generating a plurality of supply voltages for use by said array and said plurality of peripheral devices, and ~~The memory of claim 70~~ wherein said plurality of voltage supplies includes a bias generator for supplying a bias voltage to said array, said bias generator including an output status monitor; and

test mode logic for determining whether the memory is in a test mode, and wherein said plurality of peripheral devices includes a latching circuit responsive to a first external signal when the memory is in the test mode, for latching data stored in a first seed group of memory elements, and an enable circuit responsive to a second external signal when said memory is in the test mode, for enabling the latched data to be written to a second group of memory elements.

171. (currently amended) A dynamic random access memory, comprising:

an array of memory cells;

a plurality of peripheral devices for writing data into said memory cells and for reading data out of said memory cells;

a plurality of voltage supplies responsive to an external voltage for generating a plurality of supply voltages for use by said array and said plurality of peripheral devices;

~~The memory of claim 70 additionally comprising a powerup sequence circuit for controlling the powering up of certain of said plurality of voltage supplies; and~~

test mode logic for determining whether the memory is in a test mode, and wherein said plurality of peripheral devices includes a latching circuit responsive to a first external signal when the memory is in the test mode, for latching data stored in a first seed group of memory elements, and an enable circuit responsive to a second external signal when said memory is in the test mode, for enabling the latched data to be written to a second group of memory elements.

172. (currently amended) The memory of claim 70 168 wherein said memory provides at least 256 meg of storage.

173. (previously presented) The memory of claim 172 wherein said array provides more than 256 meg of storage, said memory additionally comprising repair logic to logically replace defective memory cells with operable memory cells such that said memory provides said 256 meg of storage.

174. (previously presented) The method of claim 71 wherein the first external signal is a row address strobe signal and the second external signal is a column address strobe signal.

175. (previously presented) The method of claim 174 wherein writing into subsequent groups of memory elements includes writing into multiple rows in response to each cycle of the column address strobe signal.

176. (cancelled)

177. (currently amended) A system, comprising:

a control unit for performing a series of instructions; and
a dynamic random access memory responsive to said control unit, said memory comprising: an array of memory cells, said array being organized into rows and columns to form a plurality of individual arrays, and wherein said plurality of individual arrays is organized into a plurality of array blocks,

a plurality of peripheral devices for writing data into said memory cells and for reading data out of said memory cells, and wherein said plurality of peripheral devices includes a plurality of sense amplifiers positioned between adjacent rows of individual arrays and a plurality of row decoders positioned between adjacent columns of individual arrays;

~~The system of claim 176 wherein~~ each of said plurality of individual arrays includes digitlines extending therethrough and into said sense amplifiers, and wherein said array blocks include I/O lines running between adjacent rows of individual arrays and through said sense amplifiers, said sense amplifiers including circuits for transferring signals on said digitlines to said I/O lines;

a plurality of voltage supplies responsive to an external voltage for generating a plurality of supply voltages for use by said array and said plurality of peripheral device; and

test mode logic for determining whether the memory is in a test mode, and wherein said plurality of peripheral devices includes a latching circuit responsive to a first external signal when the memory is in the test mode, for latching data stored in a first seed group of memory cells, and an enable circuit responsive to a second external signal when said memory is in the test mode, for enabling the latched data to be written to a second group of memory cells.

178. (currently amended) A system, comprising:

a control unit for performing a series of instructions; and

a dynamic random access memory responsive to said control unit, said memory comprising: an array of memory cells ~~The system of claim 100 wherein said array of memory cells is organized into a plurality of array blocks;~~

~~said memory additionally comprising~~ a power distribution bus including a first plurality of conductors forming a web around each of said array blocks and a second plurality of conductors extending from said web to form a grid within each of said array blocks;

a plurality of peripheral devices for writing data into said memory cells and for reading data out of said memory cells;

a plurality of voltage supplies responsive to an external voltage for generating a plurality of supply voltages for use by said array and said plurality of peripheral device through said distribution bus; and

test mode logic for determining whether the memory is in a test mode, and wherein said plurality of peripheral devices includes a latching circuit responsive to a first external signal when the memory is in the test mode, for latching data stored in a first seed group of memory

cells, and an enable circuit responsive to a second external signal when said memory is in the test mode, for enabling the latched data to be written to a second group of memory cells.

179. (previously presented) The system of claim 178 additionally comprising a plurality of pads located centrally with respect to said array blocks, and wherein said power distribution bus includes a third plurality of conductors running parallel to said plurality of pads for receiving an external voltage from said plurality of pads and for distributing the external voltage to said plurality of voltage supplies.

180. (previously presented) The system of claim 179 wherein said array of memory cells is organized into a plurality of array blocks, and wherein said plurality of voltage supplies includes a voltage regulator comprised of a plurality of power amplifiers, and wherein at least one power amplifier is associated with each of said plurality of array blocks.

181. (previously presented) The system of claim 180 additionally comprising circuits for disabling said at least one power amplifier when its associated array block is disabled.

182. (previously presented) The system of claim 180 wherein said plurality of power amplifiers is divided into a plurality of groups for one of separate or concurrent operation to achieve a predetermined level of output power.

183. (currently amended) A system, comprising:

a control unit for performing a series of instructions; and

a dynamic random access memory responsive to said control unit, said memory comprising: an array of memory cells;

a plurality of peripheral devices for writing data into said memory cells and for reading data out of said memory cells;

a plurality of voltage supplies responsive to an external voltage for generating a plurality of supply voltages for use by said array and said plurality of peripheral device, and ~~The system of claim 100~~ wherein said plurality of voltage supplies includes a bias generator for supplying a bias voltage to said array, said bias generator including an output status monitor; and

test mode logic for determining whether the memory is in a test mode, and wherein said plurality of peripheral devices includes a latching circuit responsive to a first external signal when the memory is in the test mode, for latching data stored in a first seed group of memory cells, and an enable circuit responsive to a second external signal when said memory is in the test mode, for enabling the latched data to be written to a second group of memory cells.

184. (currently amended) A system, comprising:

a control unit for performing a series of instructions; and

a dynamic random access memory responsive to said control unit, said memory comprising: an array of memory cells;

a plurality of peripheral devices for writing data into said memory cells and for reading data out of said memory cells;

a plurality of voltage supplies responsive to an external voltage for generating a plurality of supply voltages for use by said array and said plurality of peripheral device;

~~The system of claim 100 additionally comprising~~ a powerup sequence circuit for controlling the powering up of certain of said plurality of voltage supplies; and

test mode logic for determining whether the memory is in a test mode, and wherein said plurality of peripheral devices includes a latching circuit responsive to a first external signal when the memory is in the test mode, for latching data stored in a first seed group of memory cells, and an enable circuit responsive to a second external signal when said memory is in the test mode, for enabling the latched data to be written to a second group of memory cells.

185. (previously presented) The system of claim ~~100~~ 177 wherein said memory provides at least 256 meg of storage.

186. (previously presented) The system of claim 185 wherein said array provides more than 256 meg of storage, said memory additionally comprising repair logic to logically replace defective memory cells with operable memory cells such that said memory provides said 256 meg of storage.

187. – 202. (cancelled)

203. (previously presented) The method of claim 152 wherein the step of applying a voltage includes the step of applying a voltage higher than the highest voltage used to represent logic signals in the device.

204. (cancelled)

205. (previously presented) The method of claim 152 additionally comprising the step of ending the application of a voltage outside the range of voltages used to represent logic signals to take the device out of a test mode.

206. (previously presented) The method of claim 152 additionally comprising the step of inputting a clear test mode key to take the device out of a test mode.

207. (previously presented) The method of claim 152 wherein said test mode keys are received as address information on column address lines.

208. (previously presented) The method of claim 152 additionally comprising the steps of performing the test specified by the test mode key and outputting the test.

209. (new) The memory of claim 169 wherein said memory provides at least 256 meg of storage.

210. (new) The memory of claim 209 wherein said array provides more than 256 meg of storage, said memory additionally comprising repair logic to logically replace defective memory cells with operable memory cells such that said memory provides said 256 meg of storage.

211. (new) The memory of claim 170 wherein said memory provides at least 256 meg of storage.

212. (new) The memory of claim 211 wherein said array provides more than 256 meg of storage, said memory additionally comprising repair logic to logically replace defective memory cells with operable memory cells such that said memory provides said 256 meg of storage.

213. (new) The memory of claim 171 wherein said memory provides at least 256 meg of storage.

214. (new) The memory of claim 213 wherein said array provides more than 256 meg of storage, said memory additionally comprising repair logic to logically replace defective memory cells with operable memory cells such that said memory provides said 256 meg of storage.

215. (new) The system of claim 178 wherein said memory provides at least 256 meg of storage.

216. (new) The system of claim 215 wherein said array provides more than 256 meg of storage, said memory additionally comprising repair logic to logically replace defective memory cells with operable memory cells such that said memory provides said 256 meg of storage.

217. (new) The system of claim 183 wherein said memory provides at least 256 meg of storage.

218. (new) The system of claim 217 wherein said array provides more than 256 meg of storage, said memory additionally comprising repair logic to logically replace defective memory cells with operable memory cells such that said memory provides said 256 meg of storage.

219. (new) The system of claim 184 wherein said memory provides at least 256 meg of storage.

220. (new) The system of claim 219 wherein said array provides more than 256 meg of storage, said memory additionally comprising repair logic to logically replace defective memory cells with operable memory cells such that said memory provides said 256 meg of storage.